4. Creating a Plot

4.1. Choosing a Variable and a Plot Type

When you click on a plottable variable in the table in the Datasets Browser, note that the "Create Plot" button on the left side of the toolbar becomes enabled, as in Figure 4.1.

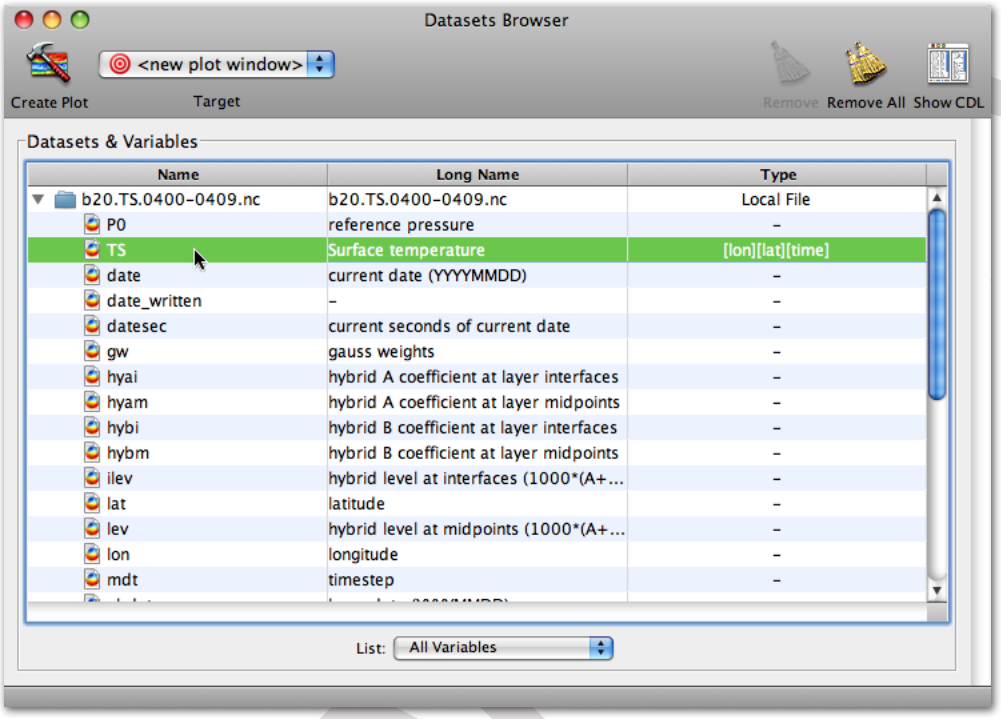

Figure 4.1

The *TS* variable in the example dataset is the only variable which is considered plottable, as is indicated by the notation *[lon][lat][time]* in the Type column of the table. All unplottable variables are marked by a long dash. This notation about the *TS* variable tells us that there are two types of plots we can make from it. How so?

1 A variable which can be plotted on a longitude-latitude grid (in other words, a map) includes the terms *[lon]* and *[lat]* in the Type column.

2 A variable which can be plotted on a latitude-vertical grid includes the terms *[lat]* and *[vert]* in the Type column.

3 A variable which can be plotted on a time-latitude grid (i.e., a keogram) includes the terms *[time]* and *[lat]* in the Type column.

Because *TS* includes *[lon]*, *[lat]*, and *[time]* in the Type column, this means you can either plot a map or a keogram from that variable. Since it does not include a vertical dimension (either altitude or depth), a latitude-vertical plot cannot be made.

Having selected a plottable variable in the table, the next step to creating a plot is clicking on the "Create Plot" button. If more than one type of plot can be created from the variable, you will be presented with a dialog asking which type you want, as in Figure 4.2.

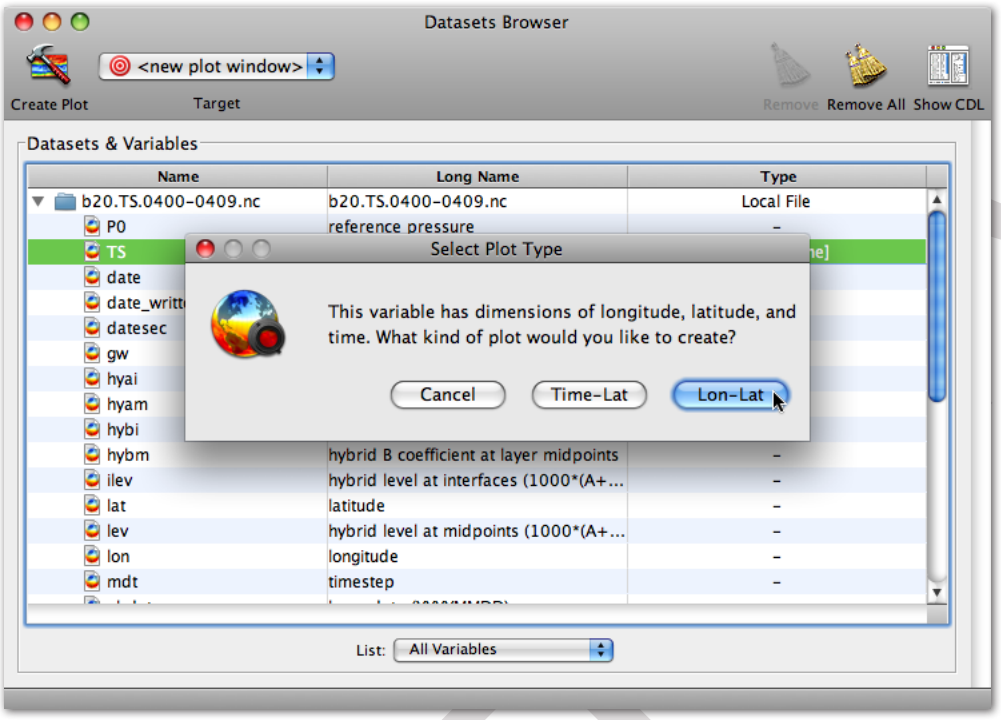

Figure 4.2

Click on the "Lon-Lat" button in the dialog to indicate a map is desired, and a new plot window will appear like that in Figure 4.4.

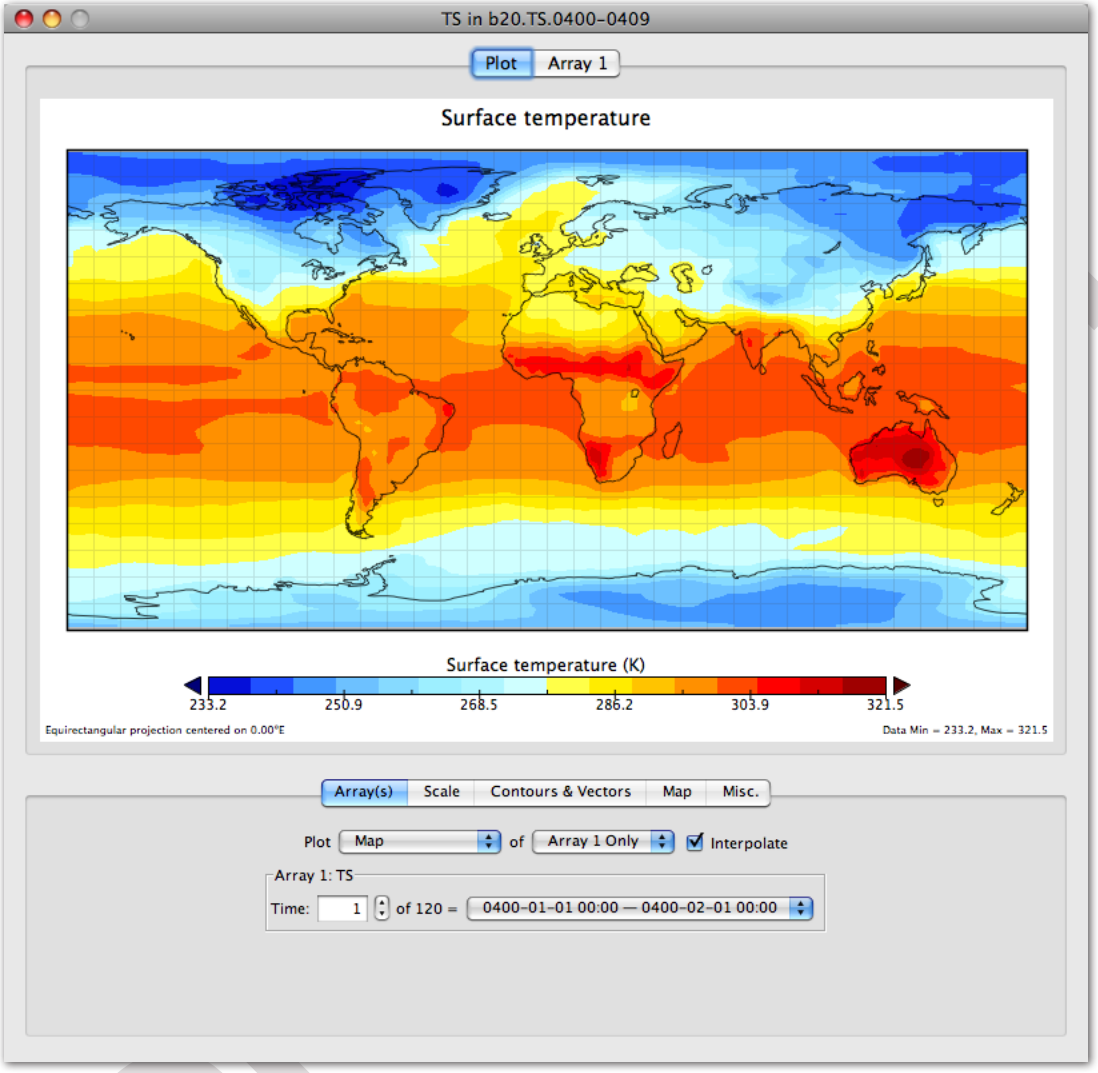

Figure 4.3

We'll discuss in the next chapter what the options are when working with a plot and what the controls are for doing so.

4.2. Alternative Ways of Creating a Plot

We showed above that when you have selected a plottable variable in the Datasets Browser, you would create a plot of that variable by clicking on the "Create Plot" button. However, there are three other ways of creating a plot in addition to clicking on that button.

1 Select Create Plot in the Plot menu.

2 More easily, double-click on the plottable variable's name in the table.

3 Invoke a shortcut menu. If you have a two-button mouse, just right-click on the variable name in the table; if you have a one-button mouse, control-click on it. A list of plot size choices appears like that in Figure 4.4.

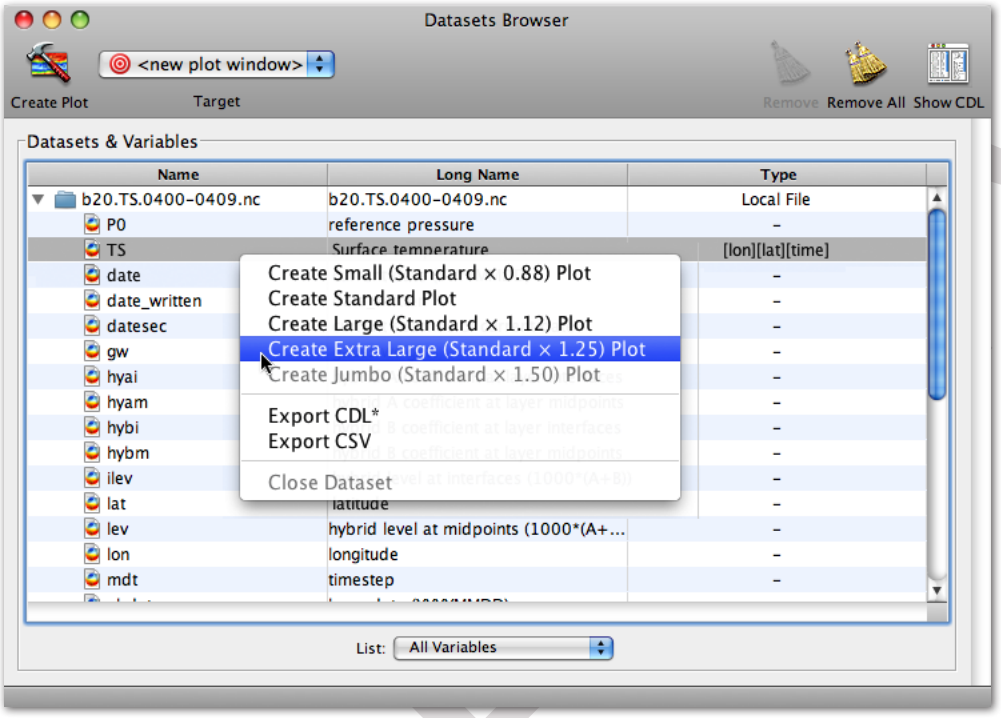

Figure 4.4

This shortcut menu offers several sizes of plot to make. The Standard size is about 760 pixels wide by 480 pixels tall. A Small plot is 12.5% smaller in both the x and y dimensions, while a Large plot is 12.5% bigger, an Extra Large is 25% bigger, and a Jumbo plot is 50% bigger.

Depending on the dimensions of your computer display, some of the larger size choices may not be available. In the sample image of Figure 4.4, the Jumbo option is grayed out and cannot be selected because the display used for the example was not big enough to show a plot which is 720 pixels (480×1.5) tall plus the control panel that is also part of the plot window. On smaller displays, especially on laptop computers, the Extra-Large and perhaps the Large sizes will also not be available.

If you expect that you will usually want to make plots other than the default Standard size, but want to avoid the extra step of using the shortcut menu every time you make a plot, you may specify a preferred plot size in the Preferences window. Whatever size you pick there will be used when you create a plot either by clicking on the "Create Plot" button or by double-clicking on the variable in the table.

4.3. Creating a Combination Plot (Differencing, Averaging, etc.)

A combination plot is a plot which merges data from two variables. Perhaps the most common use of such plots is used for "differencing", subtracting one variable from another. Another is to create a vector plot from two variables whose values are the x and y components of the vectors.

To create a combination plot in Panoply, begin by creating a plot as you would for just one variable. Then return to the Datasets Browser. Click on the "Target" pop-up menu in the toolbar and you will find that in addition to the "<new plot>" item which is always listed, there is now an item matching the name of the plot window just created.

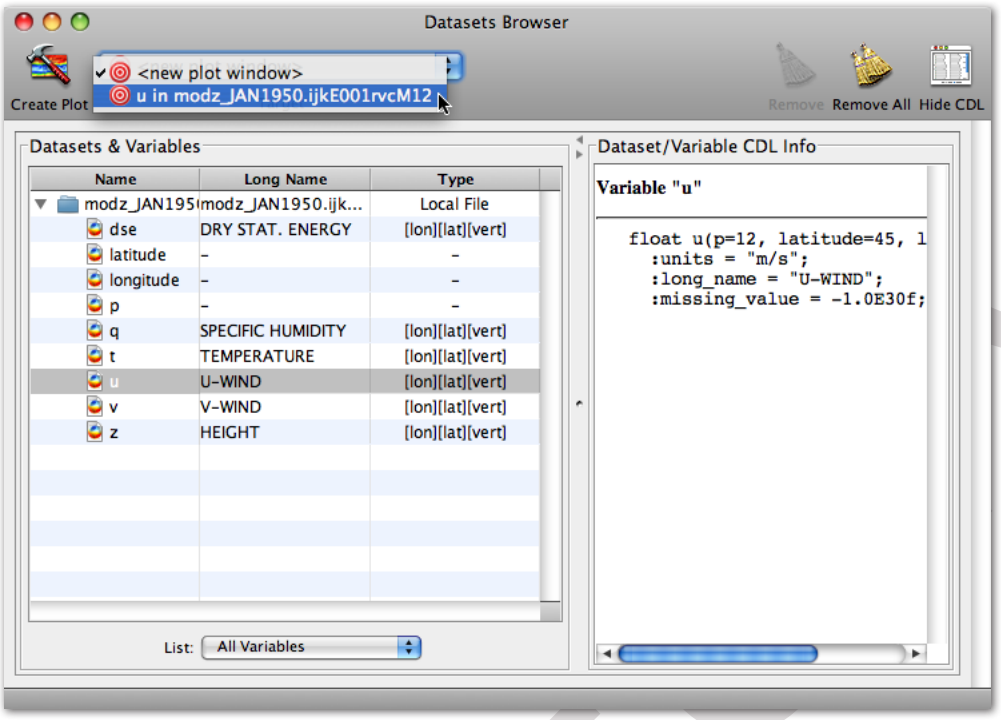

Figure 4.5

The Datasets Browser in Figure 4.5 displays a dataset which contains several plottable variables. A plot of the variable *u* has been created, and the Target pop-up menu includes an item naming the *u* plot.

Select a plot name in the Target item. The "Create Plot" button at the left changes to show two hammers and is now labeled "Combine Plot", as shown in Figure 4.6.

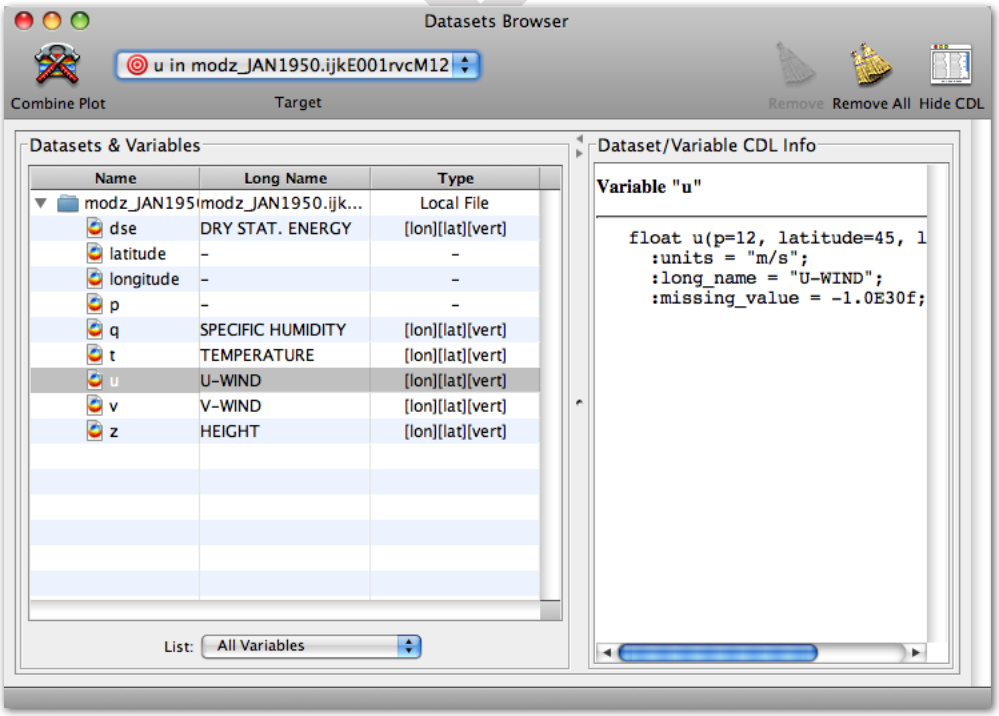

Figure 4.6

To add a second variable to the plot, just select the desired variable in the table and then click on the Combine Plot button.

This procedure of adding a second variable to a plot takes three steps: selecting the plot in the Target pop-up menu, selecting the second variable, and clicking the Combine Plot button. There are two other ways you can add the second variable to the plot which take a step or two less.

1 Select the plot in the Target pop-up menu and *double-click* on the desired second variable in the table; or

2 Ignoring the Target pop-up menu entirely, click on the icon of the desired second variable and *drag* it from the table and out of the Datasets Browser and *drop* it on the target plot window. A "ghost shadow" of the variable icon should appear adjacent to the cursor as you drag, as in Figure 4.7.

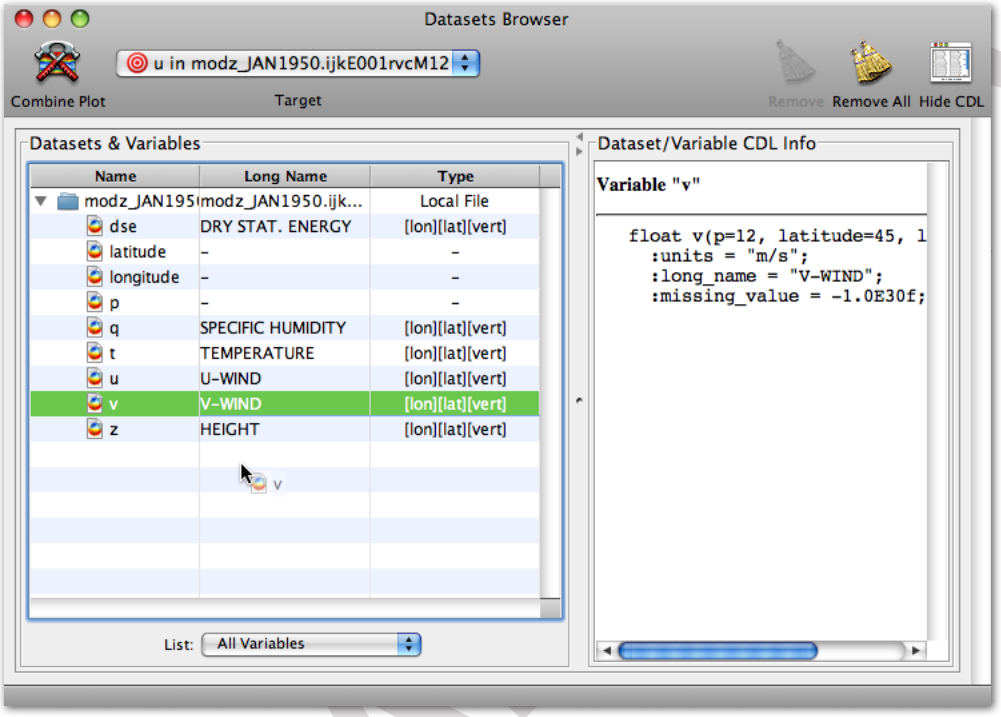

Figure 4.7